REMARKS

This is in response to the Office Action mailed January 29, 2003. In the Office Action, claims 1-33 were pending. Of those, claims 1-6, 8, 10, 13-18 and 20-27 were rejected; objections were raised to claims 7, 9, 11, 12 and 19; and claims 28-33 were allowed. With this response, claims 6-13, 18, 19 and 20-27 are canceled; claims 1, 26-31 (the erroneously numbered new claims added with the Amendment of November 1, 2002) and new claims 34-37 are provided for consideration and allowance.

Section Seven of the Office Action indicated that claims 7, 9, 11, 12 and 19 were objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With this response, independent claim 1 is amended to include the feature previously set forth in dependent claim 7. Accordingly, dependent claim 7 has been canceled. Additionally, the subject matter originally set forth in claims 9, 11, 12 and 19 is now provided in independent form in claims 34-37, respectively.

For clarity, Applicants have also amended the claims added with the previous Amendment of November 1, 2002. The claims added therein were erroneously numbered 26-31, when they should have been numbered 28-33. It is believed that the Examiner is aware of this discrepancy due to the fact that claims 28-33 are indicated as allowed. Applicants provide the amendment to those claims herein to ensure that there is no ambiguity.

In conclusion, Applicants respectfully submit that the only subject matter that remains pending in the application is that previously indicated as allowable in the Office Action mailed January 29, 2003. Reconsideration and favorable action are respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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MARKED-UP VERSION OF REPLACEMENT CLAIMS

Please cancel claims 6-13, 18, 19 and 20-27.

Please amend claims 1, 26-31.

1.(Amended) A field device coupleable to a fieldbus process communication loop, the device comprising;

a power module coupleable to the loop to power the device with energy received from the loop;

a loop communicator coupleable to the loop, and adapted to bi-directionally communicate over the loop;

a controller coupled to the loop communicator;

diagnostic circuitry coupled to the controller and operably coupleable to the loop, the diagnostic circuitry adapted to measure a loop-related parameter including long term variation of DC voltage; and

wherein the controller provides diagnostic information based upon the loop-related parameter.

~~26~~28.(Amended) A method of providing diagnostics on a fieldbus process communication loop, the method comprising:

indirectly coupling diagnostic circuitry to the fieldbus process communication loop;

measuring a parameter of the loop; and

analyzing the parameter to provide a diagnostic output.

~~27~~29.(Amended) The method of claim ~~26~~28 wherein analyzing the parameter includes performing a neural network analysis on the measured parameter.

~~28~~30.(Amended) The method of claim ~~27~~9, wherein analyzing the parameter further includes performing fuzzy logic upon the measured parameter.

~~29~~31. (Amended) The method of claim ~~26~~28, wherein analyzing the parameter includes performing fuzzy logic upon the measured parameter to provide the diagnostic output.

~~30~~32. (Amended) The method of claim ~~26~~28, wherein operably coupling diagnostic circuitry to the loop includes operably coupling the diagnostic circuitry to the loop via a loop communicator to allow the diagnostic circuitry to access data communicated by the loop communicator.

~~31~~33. (Amended) The method of claim ~~26~~28 wherein analyzing the parameter to provide a diagnostic output further comprises applying a least squares method analysis to the measured parameter.